

### Remarks

Claims 7, 11, and 19 have been amended. As amended these claims overcome the rejections based on 35 U.S.C. § 112. In particular, claim 7 has been amended so that it does not include ammonia within its scope. Thus, as amended the claim requires that at least one of the R groups on the amine must be alkyl. This amendment is clearly supported by the specification and the original claims. Claim 11 has been amended to indicate that "the dicarboxylic acid and/or derivative thereof is converted to a corresponding amide"; as amended, there is proper antecedent support for this term in the claim. Finally, claim 19 has been amended so that it includes only a single range for the amount of ruthenium.

Claims 1-32 stand rejected under 35 U.S.C. 103(a) as being unpatentable in view of a combination of Lyons (U.S. Patent No. 4,485,246) and Pesa et al. (U.S. Patent No. 4,356,124).

The Examiner states that Lyons teaches a process wherein succinic anhydride is hydrogenated in the presence of triethylamine using a ruthenium chloride triphenylphosphine catalyst, at 100°C and 150 psi, to produce gamma-butyrolactone (example 1). The Examiner acknowledges that Lyons does not teach the presence of water, and does not teach the production of a pyrrolidone. The Examiner remedies the deficiency in Lyons by pointing to Pesa et al. and arguing that Pesa et al. teaches

the preparation of a pyrrolidone by hydrogenation of maleic anhydride or succinic anhydride in the presence of an amine, wherein water or another inert substance is present (col. 2, line 34 to col. 3, line 1). The Examiner concludes that the claims would have been obvious because "a person having ordinary skill in the art could have looked to both teachings and extrapolated from one or the other process conditions to arrive at an optimal process for producing products resulting from the hydrogenation of a dicarboxylic acid or derivative thereof."

The Applicants respectfully disagree; the reasoning underlying the Examiner's conclusion is incorrect. There is no motivation for the combination of disclosure from the respective references; one of ordinary skill in the art would not have been motivated to combine the teachings of Lyons and Pesa. Significantly, in the Examiner's characterization of the references, he fails to note an important feature of the claims--that the claimed process is a "homogenous process". That term is defined in the specification at page 3, line 24, to page 4, line 3.

Pesa et al. relates to a heterogeneous process; Pesa does not disclose or suggest a homogeneous process as required by the claimed invention. Thus, one of ordinary skill in the art is taught by Pesa is that if he wishes to carry out a reaction with an amine using a ruthenium catalyst, the process must be

heterogeneous. As Applicants discuss in the specification, it was believed prior to the priority date of the present application that a hydrogenation where ruthenium or osmium was the catalyst should be carried out in the absence of water since it was believed that any water present inhibited the catalyst or significantly reduced the rate of reaction. Applicants respectfully direct the Examiner's attention to the discussion on pages 2 and 3 of the instant specification.

The teachings in the prior art, therefore, teach away from the claimed invention; there are reasons why one of ordinary skill in the art, in the context of a homogeneous process, would have avoided the combination proposed by the Examiner. There is simply nothing in these documents, or the prior art as a whole, that would lead the person of ordinary skill in the art to the claimed process.

Applicants urge the Examiner to contact the Applicants' undersigned representative at (312) 913-2136 if it is believed that a discussion would expedite prosecution of this application. Respectfully submitted,

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